WEAKNESS

the NEURO exam is key!
specifically?
motor exam

unaffected strength

- mimickers
  - Pain
  - asthenia — definition: subjective sensation of tiredness

NONSPECIFIC!

are there accompanying sx that give us a clue?

yes

CENTER ddx using accompanying sx
e.g.

ask: what is the true CoG of dz?
↓
deploy
inflammation
thought train
(choo choo)

no

is fatigue present with ↓ exertional capacity

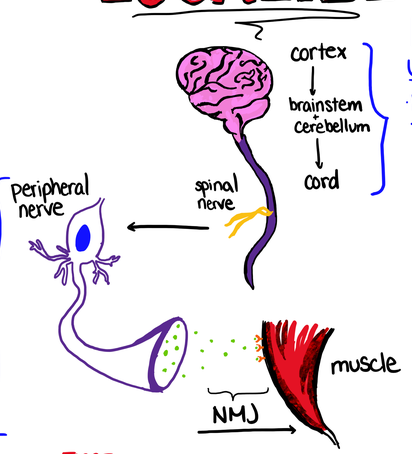
→ a good 1st thought is CARDIOPULMONARY cause
★ deploy exercise tolerance schema

everywhere @ REST

- **Psych**
  - depression
- **Neuro**
  - Parkinson's
- **Sleep Disorders**
  - OSA
- **Endocrine**
  - ↓ T_4
  - adrenal insufficiency
  - hypogonadism
- **Autoimmune**
  - Sjogrens
  - PBC
  - Celiac's
- **Other**
  - Fibromyalgia
  - Ehlers-Danlos
  - osteomalacia

↓ muscle strength

LOCALIZE



CNS

UMN signs
- hyperreflexia
- pyramidal pattern
- increased/spastic tone
- upgoing plantar reflex

signs that point to
- cortex
  - frontal → personality/behavior changes
  - Wernike/Broca's area → aphasia
  - occipital lobe → vision changes
- brainstem → CN deficits
- cerebellum → ataxia/dysmetria
- cord → Cauda Equina Syndrome

PNS

LMN signs
- hypotonia
- reduced/areflexia
- atrophy

FIRST ASK: proximal? distal? length dependent?

signs that point to:
- spinal nerve → dermatome/myotome distribution
- peripheral nerve → diminished/absent reflexes
- NMJ → fluctuation in weakness w/ use
  - fatiguability vs improvement w/ exercise
- muscle → most often proximal/symmetric

THEN CONSIDER

SOURCE

compressive

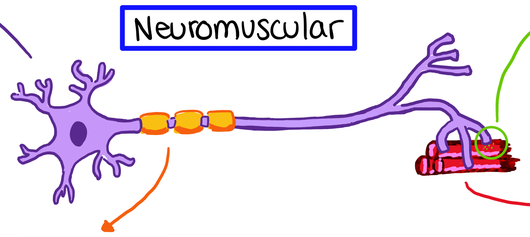
- space occupying:
  - abscess
  - tumor
- tract narrowing:
  - hypertrophic skeletal changes
  - radiculopathy

vascular

CNS:
- embolic source
- plaque rupture
- bleed

PNS:
- PAD

Neuromuscular



Neuropathy

Common

- distal slow sensory predominant
  - common
    - EtOH
    - diabetes
    - obesity
    - familial
    - idiopathic
  - other
    - nutritional
      - ↓ B_1
      - ↓ B_{12}
    - toxin
      - meds
      - heavy metal
    - metabolic
      - ↑↓ T_4
      - CKD
      - ↓ Mg/Ca
    - infxn
      - HIV
      - leprosy
    - autoimmune
      - Sjogren
      - Celiac
    - dysimmune
      - IgM
      - amyloidosis
- mononeuropathy
  - compressive
    - carpal tunnel
    - fibular head
  - other
    - Bell's
    - diabetic cranial nerve infarction

Demyelinating

- Dysimmune
  - paraprotein
    - POEMS
    - IgM related
  - idiopathic
    - AIDP
    - CIDP
  - ganglioside
    - multifocal neuropathy
      - motor
      - or
      - motor + sensory
- other
  - Med
    - amiodarone
    - immunotherapy
  - nutrition
    - ↓ B_{12}
    - ↓ Cu
  - toxin
    - arsenic
    - Buckthorn
  - genetic
    - Charcot Marie Tooth
    - adenomyelo-neuropathy

NMJ

- presynaptic
  - Lambert Eaton
- intrasynaptic
  - organophosphate
- postsynaptic
  - Myasthenia Gravis
- toxin
  - botulism
  - tick paralysis
  - shellfish
  - tetrodotoxin

myopathy

- autoimmune
  - primary
    - dermatomyositis
    - polymyositis
    - inclusion body
    - autoimmune necrotizing
  - secondary
    - vasculitis
    - eosinophilic
    - granulomatous
- non-inflammatory
  - med
    - Statin
    - Steroids
  - ↑ pressure
    - compartment syndrome
  - toxin
    - EtOH
  - ↓ use
    - critical illness
  - genetic
    - dystrophy
    - myotonic
    - mitochondria

Dx
The Clinical Problem Solvers